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Comparative analysis of escherichia coli strain plasmid DNA profile, isolated from normal and malignant intestinal epithelium of the patients with colorectal cancer

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Abstract

Optionally cultured aerobic bacteria were isolated from the biopsy materials from the colorectal cancer patients (CCP). The species belonging was determined using MALDI-TOF mass spectrometry. Escherichia coli bacteria were the main representatives of patient microflora. 16 strains of E. coli were selected from normal and oncologically transformed epithelium to characterize a set of their plasmids. An antagonistic activity against E. coli K12 was found only in 3% of the strains. There is the difference in the profile of E. coli strain plasmid DNA, colonizing normal and oncologically transformed epithelium, both by size and by the number of plasmids and by assumed mobile genetic elements. Among the strains isolated from the patient, 63% had a differing plasmid composition depending on the bacteria association with normal and malignant epithelium. At that no marker plasmid, a concomitant E. coli, colonizing only normal or only malignant epithelium was revealed. PCR analysis of plasmid DNA samples of the studied E. coli concerning the presence of lthB- and STa- genes encoding heat-labile and heat-stable enterotoxin, did not reveal their presence, which excludes the belonging of enterotoxigenic (ETEC) subgroup strains of E.coli.

Keywords

Antagonistic activity, Colicin, Colorectal cancer, Electrophoresis, Escherichiacoli, Plasmid, Toxigenicity